

**REMARKS**

Claims 1-6 and 11-17 are pending in this application, with claims 4-5 and 11 being withdrawn from consideration. By this Amendment, claims 1 and 17 are amended and claims 7-10, and 18-20 are canceled without prejudice to or disclaimer of the subject matter contained therein. No new matter is added.

**I. Preliminary Issue**

The specification is amended to add serial numbers of corresponding co-pending patent applications. No new matter is added.

**II. Pending Claims Provide a Useful Utility**

The Office Action rejects claims 1-3, 6-10, and 12-20 under 35 U.S.C. §101 alleging that the claimed invention is inoperative and therefore lacks utility. The Office Action further rejects claims 1-3, 6-10, and 12-20 under 35 U.S.C. §112, first paragraph, alleging that the claims are not enabled. In particular, the Office Action alleges that several passages of the invention are believed to be inoperative and thus fail to provide enablement or utility. Applicant respectfully disagrees and traverses these rejections. The reasons will be separately addressed in the following comments.

**A. Generally Sealed Housing**

The Office Action points to a claim feature that recites "a plurality of individual quantum jet turbine engines, each comprising a generally sealed housing that encompasses all but an exit orifice of the engine." The Office Action admits that this feature is shown in Figs. 1 and 4 and described in paragraphs [0023] and [0024]. However, Applicant disagrees with the Examiner's allegation that Applicant envisions a generally tightly sealed housing "having but the smallest orifice for the introduction of compressed air."

The dashed lines in the Figures show operative connections and flow paths and are not intended to convey a particular size as alleged. Rather, as clearly stated in the specification in

paragraph [0024], "air nozzles 250 are operably connected to a compressor 1030 through a "suitable airtight, sealed feed line (unshown) sized to match the particular jet engine used" (emphasis added). This paragraph also specifies that air within compressor 1030 may come from a remote tank or a remote air intake 1060.

Thus, the assertion that the intake lines are of the "smallest orifice" is totally unfounded. Instead, one of ordinary skill would readily recognize that this claim language refers to a housing that is substantially sealed except for the exhaust. That is, the properly sized feed lines feeding to air nozzles 250 are "sealed" as they enter into the housing.

Because of the misconceptions on the operation of Applicant's device, the Applicant provides the following summary to clarify the operating principles of his invention:

In concept, the inventive Quantum Jet Turbine Engine is a tightly sealed propulsion system symmetrically arranged inside another sealed / thick-walled casing / housing the common exhaust system (for all models). It is not an air breathing engine similar to the popular jet engines of today. That is, it does not require an open and wide intake orifice to suck in large volume of air for combustion. Rather, it takes in "only" highly compressed and superchilled air from an external chilling mechanism at a predetermined volume through a sealed feed-line directed to the combustion chamber. Embodiments of the invention mainly use the highly compressed superchilled air as a thrust booster.

This is based on the scientific principle that when air is cooled it contracts from its original volume and, when further chilled, it contracts further. Further, when it is compressed, it further contracts to a much smaller volume. When fed at high pressures into a combustion chamber heated at 1,500 °C - 1,800 °C or more, for example, these chilled and compressed air molecules (now densely packed) will immensely increase the pressure and temperature inside the combustion chamber and the expanded air molecules will travel at greater speeds, towards the exhaust system to assist in thrust generation.

This principle of feeding a compressed medium to an engine for added thrust is similar to that used, for example during World War II in the famous MUSTANG (P-51) of the North American Company. The P-51 similarly applied this basic principle by pumping in high pressured water ( $H_2O$ ) into the afterburners of the aircraft's engine to make it develop additional thrust, especially while climbing. It was proven that the water turned into superheated steam molecules. Similar principles are practiced in the famous British Royal Air Force (RAF) Harrier jump jets while performing a VTOL, and so with the recent U.S. made F-22 RAPTOR while in VTOL and supercruise modes.

Embodiments of the invention may use several kinds of fuel sources, but can also efficiently function using water ( $H_2O$ ).

In order to further clarify this structure and its operation in view of the Examiner's concerns, the independent claims are amended consistent with paragraph [0024] of the specification to define the suitably sized sealed intake lines. No new matter is added.

Thus, one of ordinary skill would recognize that an engine as claimed made from Applicant's teachings could use air as a propulsion source and would have a well balanced sealed fuel line of highly compressed, superchilled air suitably sized, after considering the mass of the vessel and its' functions, to supply sufficient quantities of air to each engine. Moreover, one of ordinary skill would be capable of making such an engine and would readily appreciate its utility as a propulsion source. Accordingly, this feature of the invention is both enabled and results in a recognized utility as a propulsion source for a vessel.

#### **B. Inlet Size Relative to Outlet Size**

It is believed that this misunderstanding of the structure of the housing and intake has led to the misconception that natural laws, such as conservation of mass, may be violated. For example, the Examiner further alleges that because "the propellant of the invention is mainly air, the inlet to the engine must have roughly the same area as the exit orifice, and

therefore providing the claimed invention with only an exit orifice renders the claimed invention inoperative." Applicant again disagrees.

As stated above, there are suitably sized "sealed" intake lines that feed highly compressed and chilled air into the engine. Thus, the Examiner's statement that Applicant recites only an exit orifice is in error.

Moreover, as discussed above, because the incoming air is already efficiently compressed and chilled, its air molecules are more closely packed. However, because the exiting air is greatly expanded due to heating, the mass of air remains the same, but the individual air molecules become further apart. Thus, the relative exit orifice can be larger than the inlet and does not violate conservation of mass as alleged. For example, a person can exhale into a room (i.e., small inlet orifice) and the exiting air may exit the room through a large door (i.e., a large exit orifice) without violating any natural laws. Rather, consistent with gas laws defined below in further detail, these laws dictate the pressure, volume and temperature of the given mass of air.

Because of the possible confusion, Applicant provides the following additional information:

In "physics," mass is the quantity of matter in a body as in its relation to inertia. The inventive quantum jet turbine engine is envisioned to harness the kinetic energy of highly expanded gases ((Air / Water) ( $H_2O$ ) molecules at high temperatures and pressures, at low volume, pushing the molecules to travel at greater speeds). Moreover, with twice the speed, the molecules have twice the momentum (MU), and hence exert double the force per impact. Therefore, the pressure of a gas, is an expansive force pushing outward in all directions, which is inherent in a gas. Similarly, a few pounds ( $H_2O$ ) of steam at high temperatures and pressures, can exert enough energy to explode a steel boiler, and when a dynamite explodes, it produce gases in a very small volume. Yet it is the pressure of these gases that tears down

buildings or pulverizes rocks. The pressure of gases is due to the incessant bombardment of an immense number of molecules moving at high speeds. These theories can well be supported by Newton's (3) laws of motion: "The acceleration produced is directly proportional to the force and inversely proportional to the mass" A force doubling the speed of the molecules produces a pressure four (4) times as great as before. Tripling the speed results in three (3) times as many (molecule) collisions per second with the surface, and three (3) times the force per collision, or nine (9) times the total force. More generally, the pressure is proportional to the square of the speed.

Thus, the inventive engine and generally sealed housing neither create nor destroy mass as alleged, but rather uses a finite amount of mass fed to the combustion chamber to perform work to achieve thrust through the exhaust. Accordingly, it is respectfully submitted that the invention does not defy natural laws but is instead fully consistent with those laws.

### **C. Upper Gas Reaction Area 510**

The Office Action questions the applicability of area 510. In particular, the Examiner asserts that the geometrically converging area 510 would result in decreased pressure and no added heat. Applicant respectfully disagrees. Applicant provides the following explanation of its operation and structure.

Area 510 is the first gas expansion area located below the combustion chamber. This area may be shaped like a perfect cone and directly connected to a suitable appendage. The gases entering area 510 function under the inherent behavior of gases as explained by Robert Boyle and Jacques Charles. The relationships between the volume, the pressure, and the temperature of a gas are mathematically simple. These relationships are exhibited by all gases with a fairly high degree of accuracy and within very wide limits, as the relationship between volume and pressure of a gas, known as " **BOYLE'S LAW**", shows quantitatively, and which is recognized from general experience. After extensive experimentation, Boyle

observed that at constant temperature, doubling the pressure on a sample of gas decreases the volume, to one half the original; and tripling the pressure reduces the volume to one third (1/3) while reducing the pressure to one tenth (1/10) results in the gas expanding to ten fold (10) in volume. In effect, at constant temperature, the volume is inversely proportional to the pressure. Mathematically, at constant temperature:

$$PV = \text{constant}$$

where P is the pressure and V is the volume. Thus, a gallon of gas at one (1) atmosphere will occupy only 1 quart if the pressure is increased to four (4) atmosphere. The implications of **(BOYLE'S LAW)** become evident by considering the pressure of the gas rather than the pressure on the gas. By **NEWTON'S** third law, of course, they are equal. A gallon of gas at room temperature exerts a certain pressure due to the impact of the molecules per square centimeter of the surface of the container. If the gas is now crowded into one fourth (1/4) of its former volume, there will be four (4) times as many molecules per unit volume. Other things being equal, and specifically, if the temperature remains the same (constant), four (4) times as many molecules will strike the wall per second. The pressure, therefore, should increase fourfold (4). Thus, Boyle's Law is a further confirmation of the correctness of the theory.

The relation between volume and temperature in a gas is known as Charles' Law. Again, we know this law quantitatively, and from general experience. We all know that a gas expands when heated, thus increasing in volume. When cooled, the gas contracts, thus decreasing in volume. We are now in a position to state **(CHARLES LAW)** that at constant pressure, the volume of gas is proportional to the absolute temperature.

Mathematically,

$$V = KT$$

where V is volume, T is the temperature in degrees absolute, and K is a constant which depends on the quality of the gas and the units chosen for the volume.

The law relating pressure and temperature at constant volume can be derived mathematically from the laws of Robert Boyle and Jacques Charles. Thus, combining the two laws, the following relationship exists. Mathematically,

$$PV/T = \text{constant, for a fixed mass.}$$

Because of the converging walls of area 510, there is a constriction to the flow. Thus, area 510 can be considered to have a generally fixed volume, which may be smaller than the volume of the combustion chamber. Area 510 receives a supply of expanding gases coming from the combustion chamber. Consistent with this mathematical formula, because the volume of area 510 remains constant, and can be smaller than the combustion chamber, pressure will increase due to the forces of the incoming new supply of gases coming into this smaller volume. Moreover, because the pressure is increased while the volume remains constant, the temperature within area 510 must also increase.

This phenomenon can also be explained in terms of kinetic energy. The gas molecules will collide with the walls of area 510 and with each other and the orderly motion should soon become increased chaotic motion. However, increased chaotic motion means a rise in temperature, the orderly, kinetic energy has become chaotic kinetic energy, which is heat.

A Quantum Jet Turbine Engine's combustion chamber and its first gas of expansion area 510 are calibrated and may come in various models and sizes depending on its task. However, it is clearly capable of increased pressure and heat in this area as recited in the specification and may serve as an automatic check-valve.

Accordingly, the inventive gas reaction area 510 is believed to operate as indicated and does not defy or violate natural laws. As such, it is fully enabled and has utility.

**D. Compound Exhaust System**

The inventive quantum jet turbine engine can operate independently without use of the optional compound exhaust system. Although Applicants disagree with the alleged inoperability, because this aspect is the subject of one of Applicant's prior patent applications, which includes a more detailed discussion of its operation, claims directed to this optional feature are canceled without prejudice to or disclaimer of the subject matter contained therein. Accordingly, questions of operability of these aspects are rendered moot.

**E. Conclusion**

It is respectfully submitted that Applicant has fully responded to all remaining issues as to enablement and utility and has demonstrated through rebuttal argument various misunderstandings of the invention claimed. Based on these arguments, it is Applicant's position that the invention as defined by the current claims is operative, consistent with natural laws, and has a useful utility as a propulsion device. Accordingly, Applicant requests withdrawal of the §101 and §112, first paragraph rejections.

**III. Request For Working Model**

The Patent Office has requested a working model based on a perceived question of inoperability. It is respectfully submitted that because of various misconceptions by the Patent Office about the operation of Applicant's device that operability should no longer be questioned. Accordingly, because Applicant has demonstrated operability through constructive reduction to practice by the submission of his patent specification and has reinforced that operability through the foregoing argument, it is submitted this requirement is moot.

Moreover, Applicant, a private inventor, wishes to point out the severe burden and impracticality of providing the Patent Office with a working model of a jet engine,



compressor, chilling mechanism, and exhaust. Beyond the huge expense needed to fabricate and build an actual device is the impracticality of shipping the device to and receiving such a large scale device at the Patent Office. Although a scale "model" might be built, it is unlikely that any practical "model scale" would be operable as compressors, combustion chambers, coolers, etc. that operate properly must have significant size and weight. Further, to demonstrate operability would require a test stand that could withstand any forces generated by this jet engine, something it is not believed is present in the Patent Offices. Accordingly, it is believed to be more efficient for all parties concerned that operability is demonstrated through rebuttal argument as provided.

#### **IV. Rejoinder**

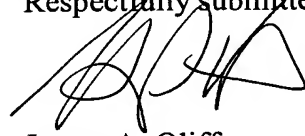
Applicant notes with appreciation that there are no current prior art rejections. It is thus believed that the pending claims, including independent claims 1 and 17 are both generic and contain patentable subject matter. Accordingly, Applicant requests rejoinder and allowance of withdrawn dependent claims 4-5 and 11 as required by MPEP §821.04. It is respectfully submitted that this is necessary to avoid unnecessary burden and added expense to Applicant.

#### **V. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the pending claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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